

## ABSTRACT

An improved process is disclosed for producing acetic acid, including the following steps: reacting a carbonylatable reactant such as methanol, methyl acetate, methyl formate or dimethyl ether with carbon monoxide in a reaction medium containing water, methyl iodide, and a catalyst to produce a reaction product that contains acetic acid; separating the reaction product to provide a volatile phase containing acetic acid, water, and methyl iodide and a less volatile phase; distilling the volatile phase to produce a purified acetic acid product and a first overhead containing water, methyl acetate, and methyl iodide; phase separating the first overhead to provide a first liquid phase containing water and a second liquid phase containing methyl iodide; and adding dimethyl ether to the process in an amount effective to enhance separation of the first overhead to form the first and second liquid phases.